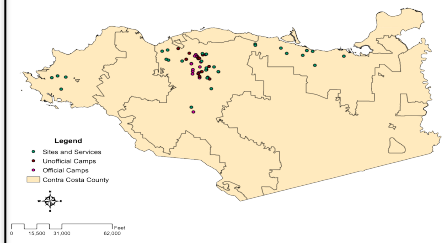
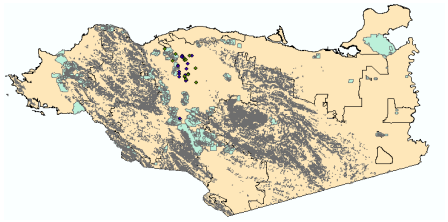
Contra Costa County Homeless Camps: Improved Risk Assessment for Targeted Interventions

Background: To mitigate creek and waterway pollution, Contra Costa County Flood Control District directs considerable resources to homeless encampment eradication, with limited success. We analyzed **which areas are most appealing for homeless camps, in order to plan for alternative interventions.**

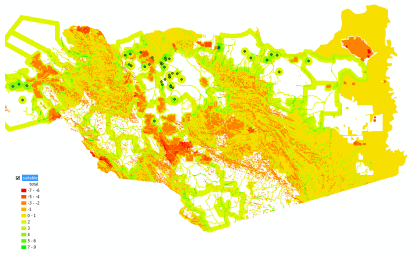
Step 1: Determine where camps are located. Using interviews, and field knowledge, we gathered coordinates and address of camps and services used by the homeless. We geocoded this information to map sites. (1)



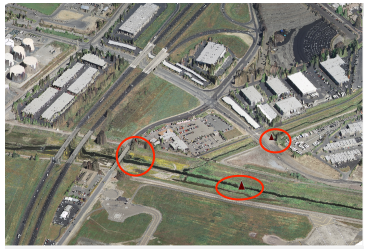
Step 2: Calculate uninhabitable slope. Using county contour data we created a raster of slope that was then analyzed for areas with slope greater than ten degrees. This was turned into feature for suitability (2)



Step 3: Determine where homeless are likely to camp. Compile list of constraints and opportunities based on interviews create layers for a Suitability Analysis (3)

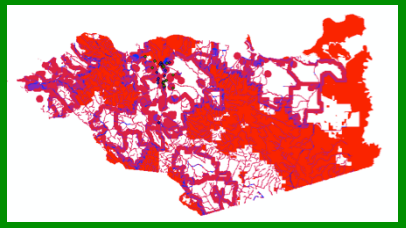


Step 4: Show what camps look like Using Lidar data and ortho-imagery perform 3-D visualization of camp locations(4)

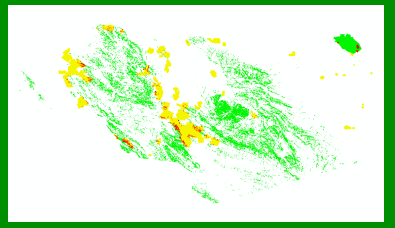


Factor	Justification	Weight
Commercial, agricultural, & Industrial zones	Provide shelter, open space, materials for building homes and decreased policing of homeless.	1
¼ mile from City Limits	Less stigmatization and policing, still accessible.	2
≤ 500 feet of Intersection of creeks and highways	These intersections provide shelter from the elements and white noise.	3
≤ 300 feet of creeks	Creeks provide white noise, open space, heat relief.	2
≤ 2500 feet of services	Comfortable walk and bike distance to services.	2
¼ mile from Residential zones	Homeless avoid residential areas due to increased stigmatization and policing.	-4
Flood zone	People tend to avoid areas with high flood risk.	-3
Slope (≥ than 10 degrees)	Steep slopes are difficult places to build camps, generally avoided.	-3

Opportunity Map



Constraint Map



Results: The suitability map shows where homeless are likely to camp and correlates with what we know about camp locations in the central county. The imaging shows what camp areas look like and could be used to plan appropriate interventions.

Uncertainty and Limitations: Our analysis was limited by incomplete flooding data, and focused on the central part of the county. Using our phones to geocode camps led to coarse locations and the inclusion of other major overpasses and bridges would give a fuller picture of possible camp sites. Future analysis should target key waterways, analyze other parts of County and include jurisdictional boundaries.

Conclusions: Knowing what spots are considered appropriate for camps from a homeless perspective can help the county. Eradicating all of these sites without providing alternative housing opportunities will not be effective. In the past year the county has cleared 3 sites 63 times. To mitigate pollution, County should use this data to target areas for garbage collection, sanctioned sites or targeted services in some suitable areas, based on a assessment of their interests. 3-D maps may help decision-makers visualize homeless camps.

Data Sources: (1) Devuono-powell and Gould, April 2013 and Contra Costa County Flood Control District, (2) USGS NED data, http://nationalmap.gov (3) http://Ccmaps.gov, Weights determined through interviews with homeless. (4) Cal-ATLAS Lidar data and images, Atlas.ca.gov